FluWatch

Public Health Agency of Canada | Agence de la santé publique du Canada

January 22 to 28, 2017 (Week 04)

Overall Summary

- Influenza activity continues to be reported across Canada and a few regions are reporting widespread influenza activity.
- All indicators (laboratory detections, influenza-like illness, outbreaks and hospitalizations) have either decreased or remained similar to the previous week.
- In week 04, 51 outbreaks were reported, the majority in long-term care facilities and due to influenza A.
- A(H3N2) continues to be the most common type of influenza affecting Canadians.
- The majority of laboratory detections, hospitalizations and deaths have been among adults aged 65+ years.
- For more information on the flu, see our Flu(influenza) web page.

Influenza/Influenza-like Illness (ILI) Activity (geographic spread)

In week 04, all but four regions (two in NL, and one each in NB and MB) are reporting influenza or influenza-like illness activity. Sporadic influenza activity was reported in 24 regions across thirteen provinces and territories. Localized activity was reported in 21 regions across six provinces. Widespread activity was reported in two provinces (two regions each in BC and AB). For more details on a specific region, click on the map.

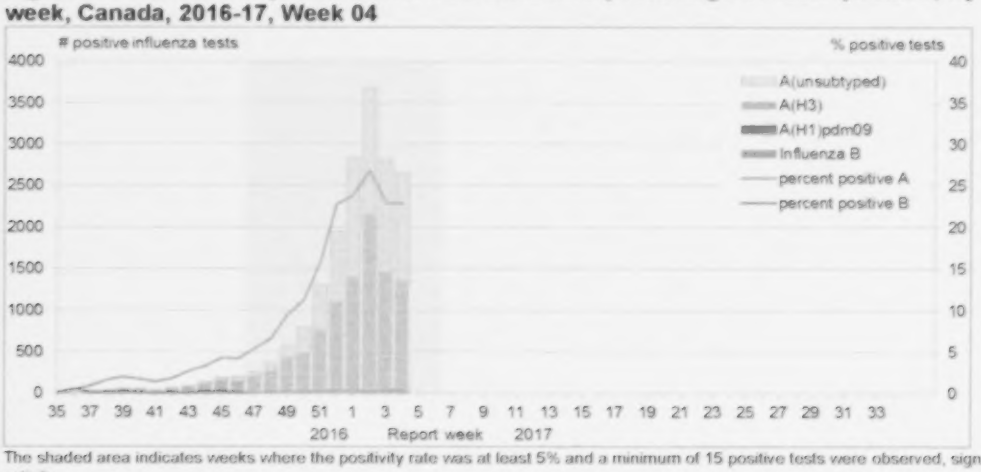
Figure 1 – Map of overall influenza/ILI activity level by province and territory, Canada, Week 04

Note: Influenza/ILI activity levels, as represented on this map, are assigned and reported by Provincial and Territorial Ministries of Health, based on laboratory confirmations, sentinel ILI rates and reported outbreaks. Please refer to detailed definitions at the end of the report. Maps from previous weeks, including any retrospective updates, are available in the mapping feature found in the Weekly Influenza Reports.

Laboratory Confirmed Influenza Detections

In week 04, the percentage of tests positive for influenza remained similar to the previous week at 23%. For data on other respiratory virus detections, see the Respiratory Virus Detections in Canada Report on the Public Health Agency of Canada (PHAC) website.

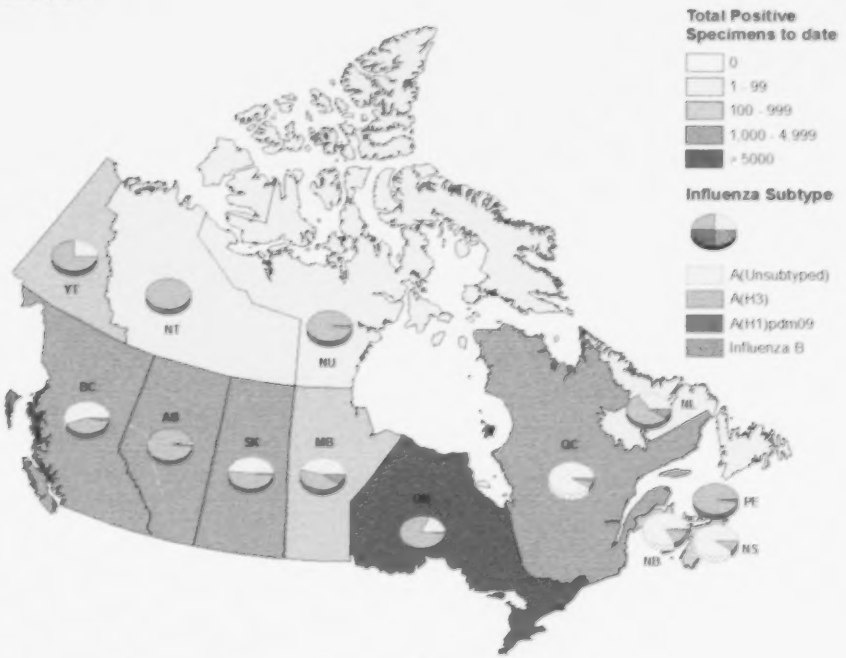
Figure 2 – Number of positive influenza tests and percentage of tests positive, by type, subtype and report week, Canada, 2016-17, Week 04



The shaded area indicates weeks where the positivity rate was at least 5% and a minimum of 15 positive tests were observed, signalling the period of seasonal influenza activity.

Nationally in week 04, 2,586 positive influenza tests were reported, down from 2,667 tests reported in week 03. Many provinces and territories reported decreased influenza detections in week 04 but some regions such as the Atlantic region reported increased influenza detections from the previous week. To date, 17,914 laboratory confirmed influenza detections have been reported, of which 98% have been influenza A. Influenza A(H3N2) is the most common subtype detected, representing over 99% of subtyped influenza A detections (10038/10080). For more detailed weekly and cumulative influenza data, see the text descriptions for Figures 2 and 3 or the Respiratory Virus Detections in Canada Report.

Figure 3 – Cumulative numbers of positive influenza specimens by type/subtype and province/territory, Canada, 2016-17, Week 04



To date, detailed information on age and type/subtype has been received for 12,694 laboratory confirmed influenza cases. Among cases with reported age and type/subtype information, adults aged 65+ accounted for almost half of the reported influenza cases and the largest proportion (45%) of influenza A (H3N2) cases.

Table 1 – Weekly and cumulative numbers of positive influenza specimens by type, subtype and age-group reported through case-based laboratory reporting[1], Canada, 2016-17, Week 04

Age groups (years)	Week (January 22 to January 28, 2017)					Cumulative (August 28, 2016 to January 28, 2017)						
	Influenza A				B	Influenza A				B	Influenza A and B	
	A Total	A(H1) pdm09	A(H3)	A (UnS)[3]	Total	A Total	A(H1) pdm09	A(H3)	A (UnS)[3]	Total	#	%
0-4	140	0	41	99	<5	>1010	<5	465	545	47	>1057	x%
5-19	147	0	54	93	5	>1235	<5	682	553	41	>1276	x%
20-44	185	0	67	118	<5	1944	6	1079	859	38	1982	16%
45-64	191	0	69	122	7	2131	10	1100	1021	48	2179	17%
65+	604	0	172	432	13	>6119	<5	2775	3344	74	>6193	x%
Total	1267	0	403	864	29	12446	23	6101	6322	248	12694	100%
Percentage[2]	98%	0%	32%	68%	2%	98%	0%	49%	51%	2%		

[1]Table 1 includes specimens for which demographic information was reported. These represent a subset of all positive influenza cases reported. Cumulative data include updates to previous weeks.
[2]Percentage of tests positive for sub-types of influenza A are a percentage of all influenza A detections.
[3]UnS: unsubtyped: The specimen was typed as influenza A, but no result for subtyping was available.
x: Supressed to prevent residual disclosure
Specimens from NT, YT, and NU are sent to reference laboratories in the provinces

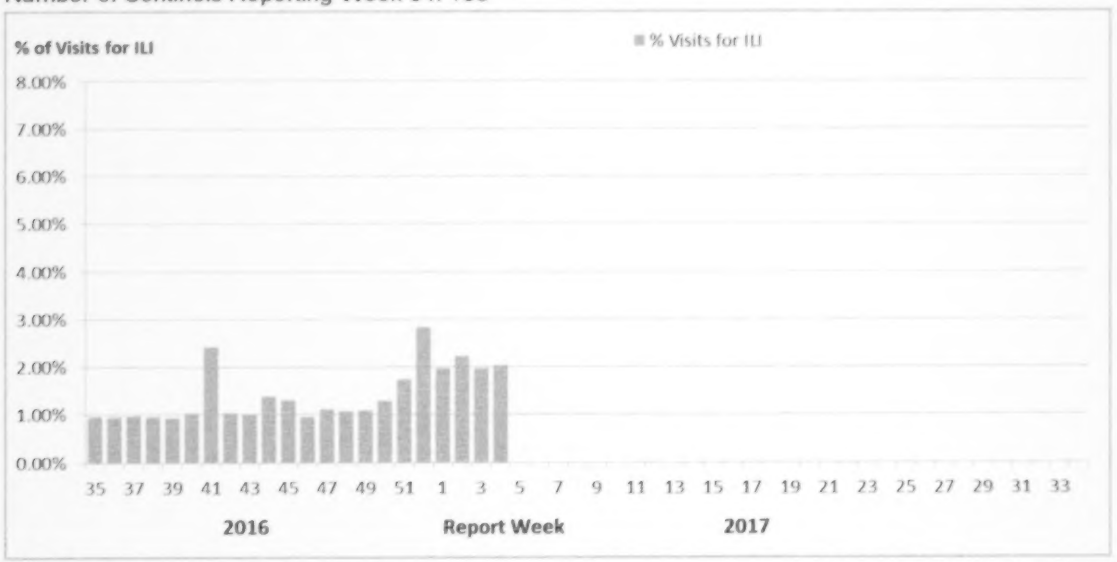
Syndromic/Influenza-like Illness Surveillance

Healthcare Professionals Sentinel Syndromic Surveillance

In week 04, 2.0% of visits to healthcare professionals were due to influenza-like illness.

Figure 4 – Percentage of visits for ILI reported by sentinels by report week, Canada, 2016-17

Number of Sentinels Reporting Week 04: 108



Delays in the reporting of data may cause data to change retrospectively. In BC, AB, and SK, data are compiled by a provincial sentinel surveillance program for reporting to FluWatch. Not all sentinel physicians report every week.

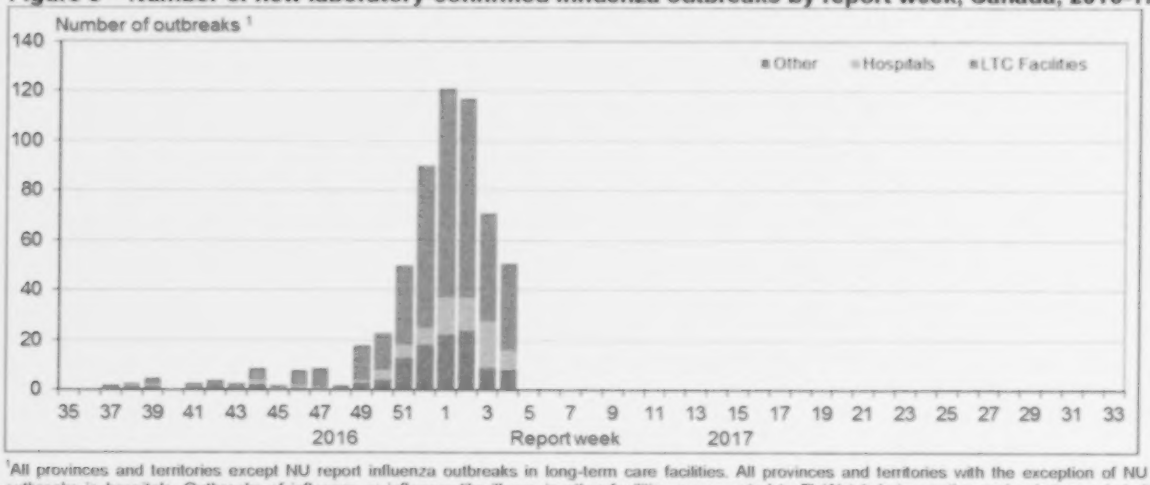
Are you a primary healthcare practitioner (General Practitioner, Nurse Practitioner or Registered Nurse) interested in becoming a FluWatch sentinel? Please visit our Influenza Sentinel page for more details.

Influenza Outbreak Surveillance

In week 04, 51 laboratory confirmed influenza outbreaks were reported: 35 in long-term care (LTC) facilities, eight in hospitals and eight in institutional or community (other) settings. All outbreaks were due to influenza A. Of the outbreaks with known strains or subtypes, seven were due to influenza A(H3N2) and 23 were due to influenza A(UnS). An additional three outbreaks due to ILI were reported in schools.

To date this season, 598 outbreaks have been reported and the majority (68%) have occurred in LTC facilities. Compared to the same period in the 2014-15 season, the previous influenza A(H3N2)-predominant season, 1,146 outbreaks were reported, of which 75% occurred in LTC facilities.

Figure 5 – Number of new laboratory-confirmed influenza outbreaks by report week, Canada, 2016-17, Week 04



[1]All provinces and territories except NU report influenza outbreaks in long-term care facilities. All provinces and territories with the exception of NU and QC report outbreaks in hospitals. Outbreaks of influenza or influenza-like-illness in other facilities are reported to FluWatch but reporting varies between jurisdictions.Outbreak definitions are included at the end of this report.

Provincial/Territorial Influenza Hospitalizations and Deaths

In week 04, 423 influenza-associated hospitalizations were reported by participating provinces and territories*. Influenza A accounted for the majority of hospitalizations (97%). Adults aged 65+ accounted for the largest proportion of hospitalizations (69%). A total of six intensive care unit (ICU) admissions and 24 deaths were reported in week 04.

To date this season, 2,964 hospitalizations have been reported, of which 99% were due to influenza A. Among cases for which the subtype of influenza A was reported, almost all (1692/1698) were influenza A(H3N2). Adults 65+ accounted for 70% of the hospitalizations. One hundred and one ICU admissions and greater than 105 deaths have been reported. The majority of deaths were reported in adults aged 65+ years.

Table 2 – Cumulative number of hospitalizations, ICU admissions and deaths by age and influenza type reported by participating provinces and territories, Canada, 2016-17, Week 04

Age Groups (years)	Cumulative (August 28, 2016 to January 28, 2017)						
	Hospitalizations			ICU Admissions		Deaths	
	Influenza A Total	Influenza B Total	Total [# (%)]	Influenza A and B Total	%	Influenza A and B Total	%
0-4	200	7	207 (7%)	7	7%	0	x%
5-19	122	7	129 (4%)	8	8%	<5	x%
20-44	164	<5	>164 (x%)	8	8%	0	x%
45-64	391	<5	>391 (x%)	29	29%	16	x%
65+	2042	25	2067 (70%)	49	48%	89	x%
Total	2919	45	2964 (100%)	101	100%	>105	100%

x: Supressed to prevent residual disclosure

*Note: Influenza-associated hospitalizations are not reported to PHAC by BC, NU, and QC. Only hospitalizations that require intensive medical care are reported by SK. ICU admissions are not distinguished among hospital admissions reported from ON. The hospitalization or death does not have to be attributable to influenza, a positive laboratory test is sufficient for reporting.

Sentinel Hospital Influenza Surveillance

Pediatric Influenza Hospitalizations and Deaths

In week 04, 31 laboratory-confirmed influenza-associated pediatric (≤16 years of age) hospitalizations were reported by the Immunization Monitoring Program Active (IMPACT) network. All cases were due to influenza A. The number of hospitalizations reported in week 04 is below the six year average for the same time period (Figure 7).

To date this season, 270 laboratory-confirmed influenza-associated pediatric hospitalizations were reported by the IMPACT network. Children aged 0-23 months accounted for approximately 40% of hospitalizations. Influenza A accounted for 94% (n=253) of the reported hospitalizations, of which 45% (n=113) were influenza A(H3N2) and the remainder were A(UnS). Additionally, 45 intensive care unit (ICU) admissions have been reported, of which the largest proportion (29%) was reported in children 0-23 months. A total of 28 ICU cases reported at least one underlying condition or comorbidity. No deaths have been reported this season.

In 2014-15, the previous influenza A(H3N2)-predominant season, there were 467 hospitalizations, 53 ICU admissions and less than five deaths reported as of week 04.

Figure 6 – Cumulative numbers of pediatric hospitalizations (≤16 years of age) with influenza by age-group reported by the IMPACT network, Canada, 2016-17, Week 04

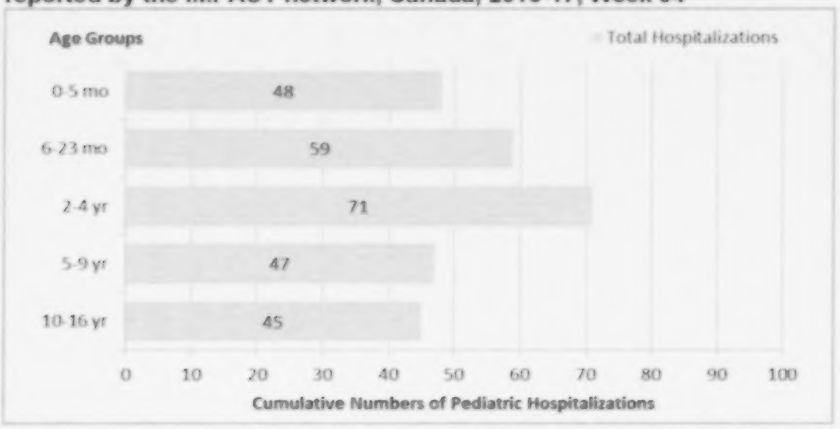
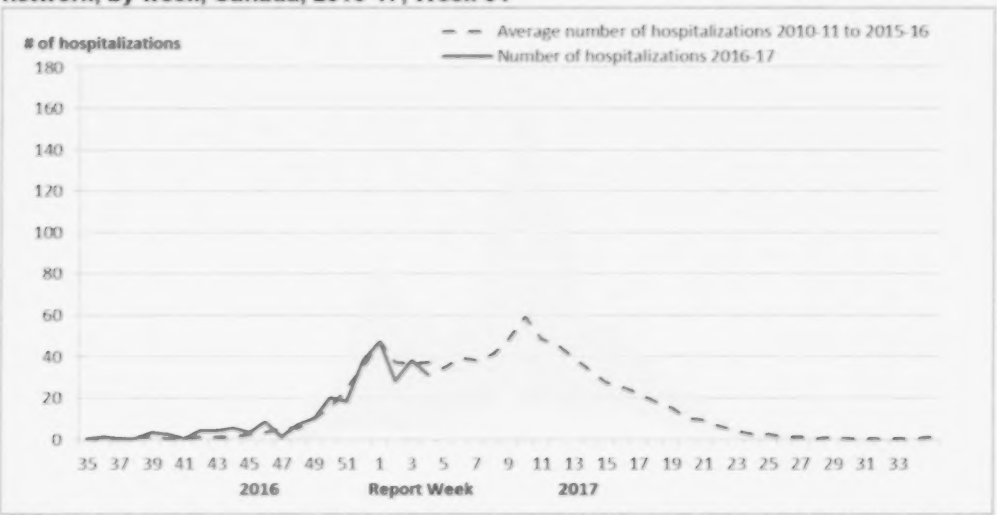


Figure 7 – Number of pediatric hospitalizations (≤16 years of age) with influenza reported by the IMPACT network, by week, Canada, 2016-17, Week 04



The shaded area represents the maximum and minimum number of cases reported by week from seasons 2010-11 to 2015-16

The number of hospitalizations reported through IMPACT represents a subset of all influenza-associated pediatric hospitalizations in Canada. Delays in the reporting of data may cause data to change retrospectively.

Adult Influenza Hospitalizations and Deaths

In week 04, 84 laboratory-confirmed influenza-associated adult (≥20 years of age) hospitalizations were reported by the Canadian Immunization Research Network (CIRN). All but one case were due to influenza A and the majority of cases (81%) occurred in adults aged 65+.

To date this season, 619 laboratory-confirmed influenza-associated adult (≥20 years of age) hospitalizations have been reported by CIRN. All but six hospitalized cases were due to influenza A. Adults aged 65+ accounted for 77% of hospitalizations. To date, greater than 30 intensive care unit (ICU) admissions have been reported. A total of 20 ICU cases reported at least one underlying condition or comorbidity. The median age of patients admitted to the ICU was 69 years. A total of 12 deaths have been reported this season, all in adults aged 65+. The median age of reported deaths was 82 years.

Figure 8 - Cumulative numbers of adult hospitalizations (≥20 years of age) with influenza by type and age-group reported by CIRN, Canada, 2016-17, Week 04

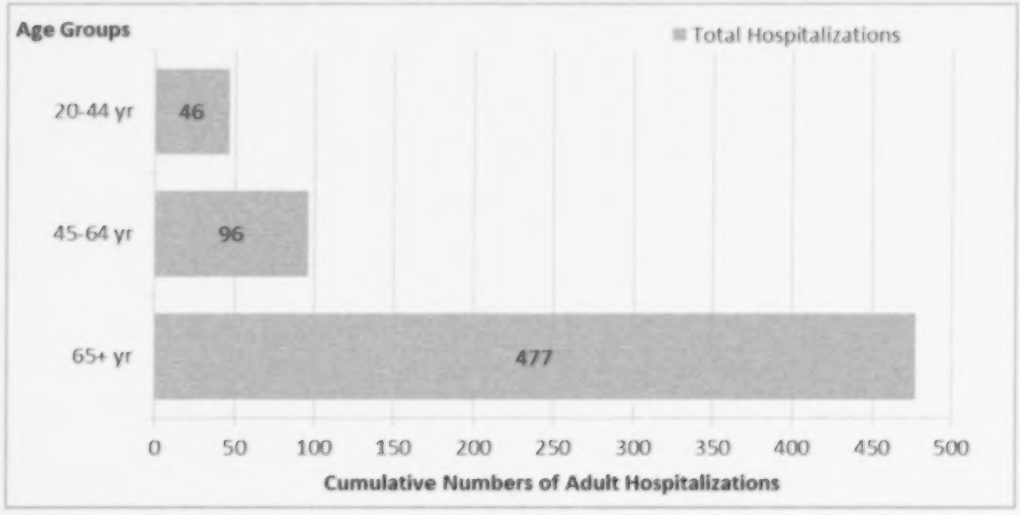
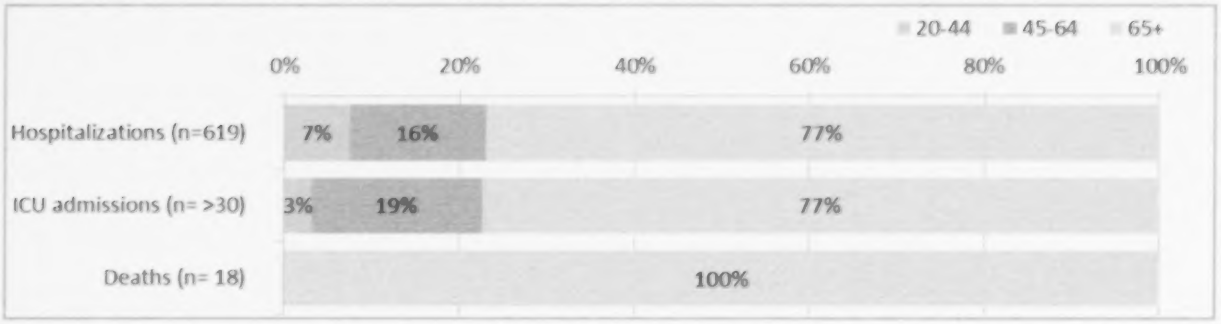


Figure 9 – Percentage of hospitalizations, ICU admissions and deaths with influenza by age-group (≥20 years of age) reported by CIRN, Canada 2016-17, Week 04



The number of hospitalizations reported through CIRN represents a subset of all influenza-associated adult hospitalizations in Canada. Delays in the reporting of data may cause data to change retrospectively.

Influenza Strain Characterizations

During the 2016-17 influenza season, the National Microbiology Laboratory (NML) has characterized 459 influenza viruses [417 A(H3N2), 10 A(H1N1), 32 influenza B]. All but one influenza A virus (n=426) and all (n=32) influenza B viruses characterized were antigentically or genetically similar to the vaccine strains included in both the trivalent and quadrivalent vaccines. Seventeen influenza B viruses were similar to the strain which is included only in the quadrivalent vaccine.

Table 3 – Influenza strain characterizations, Canada, 2016-17, Week 04

Strain Characterization Results[1]	Count	Description
Influenza A (H3N2)		
Antigenically A/Hong Kong/4801/2014-like	147	Viruses antigenically similar to A/Hong Kong/4801/2014, the A(H3N2) component of the 2016-17 Northern Hemisphere's trivalent and quadrivalent vaccine.
Genetically[2] A/Hong Kong/4801/2014-like	269	Viruses belonging to genetic group 3C.2a. A/Hong Kong/4801/2014-like virus belongs to genetic group 3C.2a and is the influenza A(H3N2) component of the 2016-17 Northern Hemisphere's trivalent and quadrivalent vaccine. Additionally, genetic characterization of the 147 influenza A (H3N2) viruses that underwent HI testing determined that 112 viruses belonged to genetic group 3C.2a and 25 viruses belonged to genetic group 3C.3a. Sequencing is pending for the remaining 10 isolates. The majority of viruses belonging to genetic group 3C.3a are inhibited by antisera raised against A/Hong Kong/4801/2014[3].
Antigenically A/Indiana/10/2011-like[4]	1	Viruses antigenically similar to A/Indiana/10/2011, a candidate H3N2v vaccine virus.
Influenza A (H1N1)		
A/California/7/2009-like	10	Viruses antigenically similar to A/California/7/2009, the A(H1N1) component of the 2016-17 Northern Hemisphere's trivalent and quadrivalent influenza vaccine.
Influenza B		
B/Brisbane/60/2008-like (Victoria lineage)	15	Viruses antigenically similar to B/Brisbane/60/2008, the influenza B component of the 2016-17 Northern Hemisphere's **trivalent** and **quadrivalent** influenza vaccine.
B/Phuket/3073/2013-like (Yamagata lineage)	17	Viruses antigenically similar to B/Phuket/3073/2013, the additional influenza B component of the 2016-17 Northern Hemisphere **quadrivalent** influenza vaccine.

[1] The NML receives a proportion of the influenza positive specimens from provincial laboratories for strain characterization and antiviral resistance testing. Strain characterization data reflect the results of hemagglutination inhibition (HI) testing compared to the reference influenza strains recommended by WHO.
[2] Determined by sequence analysis.
[3] WHO - Recommended composition of the influenza virus vaccines for use in the 2016-17 northern hemisphere influenza season.
[4] Detected in epidemiological week 50. For more details, see Week 50 report.

Antiviral Resistance

During the 2016-17 season, the National Microbiology Laboratory (NML) has tested 345 influenza viruses for resistance to oseltamivir, 344 to zanamivir and 132 to amantadine. All viruses were sensitive to oseltamivir and zanamivir. All 132 influenza A viruses were resistant to amantadine (Table 4).

Table 4 – Antiviral resistance by influenza virus type and subtype, Canada, 2016-17, Week 04

Virus type and subtype	Oseltamivir		Zanamivir		Amantadine	
	# tested	# resistant (%)	# tested	# resistant (%)	# tested	# resistant (%)
A (H3N2)	303	0 (0%)	303	0 (0%)	123	123 (100%)
A (H3N2v)	1	0 (0%)	1	0 (0%)	1	1 (100%)
A (H1N1)	10	0 (0%)	9	0 (0%)	8	8 (100%)
B	31	0 (0%)	31	0 (0%)	NA[1]	NA[1]
TOTAL	345	0 (0%)	344	0 (0%)	132	132 (100%)

[1]NA: Not Applicable

Provincial and International Influenza Reports

- World Health Organization influenza update
- World Health Organization FluNet
- WHO Influenza at the human-animal interface
- Centers for Disease Control and Prevention seasonal influenza report
- European Centre for Disease Prevention and Control - epidemiological data
- South Africa Influenza surveillance report
- New Zealand Public Health Surveillance
- Australia Influenza Report
- Pan-American Health Organization Influenza Situation Report
- Alberta Health – Influenza Surveillance Report
- BC - Centre for Disease Control (BCCDC) - Influenza Surveillance
- New Brunswick – Influenza Surveillance Reports
- Newfoundland and Labrador – Surveillance and Disease Reports
- Nova Scotia - Flu Information
- Public Health Ontario – Ontario Respiratory Pathogen Bulletin
- Manitoba – Epidemiology and Surveillance – Influenza Reports
- Saskatchewan – influenza Reports
- PEI – Influenza Summary

FluWatch Definitions for the 2016-2017 Season

Abbreviations: Newfoundland/Labrador (NL), Prince Edward Island (PE), New Brunswick (NB), Nova Scotia (NS), Quebec (QC), Ontario (ON), Manitoba (MB), Saskatchewan (SK), Alberta (AB), British Columbia (BC), Yukon (YT), Northwest Territories (NT), Nunavut (NU).

Influenza-like-illness (ILI): Acute onset of respiratory illness with fever and cough and with one or more of the following - sore throat, arthralgia, myalgia, or prostration which is likely due to influenza. In children under 5, gastrointestinal symptoms may also be present. In patients under 5 or 65 and older, fever may not be prominent.

ILI/Influenza outbreaks

Schools: Greater than 10% absenteeism (or absenteeism that is higher (e.g. >5-10%) than expected level as determined by school or public health authority) which is likely due to ILI. Note: it is recommended that ILI school outbreaks be laboratory confirmed at the beginning of influenza season as it may be the first indication of community transmission in an area.
Hospitals and residential institutions: two or more cases of ILI within a seven-day period, including at least one laboratory confirmed case. Residential institutions include but not limited to long-term care facilities (LTCF) and prisons.
Workplace: Greater than 10% absenteeism on any day which is most likely due to ILI.
Other settings: two or more cases of ILI within a seven-day period, including at least one laboratory confirmed case; i.e. closed communities.
Note that reporting of outbreaks of influenza/ILI from different types of facilities differs between jurisdictions.

Influenza/ILI Activity Levels

1 = No activity: no laboratory-confirmed influenza detections in the reporting week, however, sporadically occurring ILI may be reported
2 = Sporadic: sporadically occurring ILI and lab confirmed influenza detection(s) with **no outbreaks** detected within the influenza surveillance region†
3 = Localized: (1) evidence of increased ILI* ;
(2) lab confirmed influenza detection(s);
(3) **outbreaks** in schools, hospitals, residential institutions and/or other types of facilities occurring in **less than 50% of the influenza surveillance region**†
4 = Widespread: (1) evidence of increased ILI*;
(2) lab confirmed influenza detection(s);
(3) **outbreaks** in schools, hospitals, residential institutions and/or other types of facilities occurring **in greater than or equal to 50% of the influenza surveillance region**†

Note: ILI data may be reported through sentinel physicians, emergency room visits or health line telephone calls.
** More than just sporadic as determined by the provincial/territorial epidemiologist.*
† Influenza surveillance regions within the province or territory as defined by the provincial/territorial epidemiologist.

We would like to thank all the Fluwatch surveillance partners who are participating in this year's influenza surveillance program.
This report is available on the Government of Canada Influenza webpage. Ce rapport est disponible dans les deux langues officielles.